

STRAINED SILICON ON A SiGe ON SOI SUBSTRATE

ABSTRACT

A semiconductor device with an undercut relaxed SiGe layer having voids beneath the SiGe layer. The voids may be filled with a dielectric such as SiO₂. A strained Si layer may be epitaxially grown on the relaxed SiGe layer to combine the benefits of a defect-free strained Si surface and a silicon-on-insulator substrate. The relaxed SiGe layer may be relatively thin, with a thickness below the critical thickness. Thus, the structure accommodates shallow junctions, which exhibit reduced junction capacitance.

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